

MANUFACTURING EXTENSION PARTNERSHIP

Success Stories from the Field

ZTEC Instruments Inc.

New Mexico Manufacturing Extension Partnership

ZTEC Instruments, Inc. Increases Production with Lean

Client Profile:

ZTEC Instruments, Inc., located in Albuquerque, New Mexico designs and manufactures modular digital oscilloscopes and function generators/arbitrary waveform generators. ZTEC's scopes and signal sources deliver the channel density and flexibility of modular instruments, along with the performance and convenience of bench-top instruments. Additionally, ZTEC provides free flexible software and quality drivers for the instruments. The company provides targeted solutions for aerospace and defense, high energy physics, and embedded test and measurement applications. ZTEC's products also are used for general purpose test and measurement needs. Founded in 1996, the company employs 8 people.

Situation:

ZTEC was forced to seek new methods to increase efficiency and cut costs due to the recent economic downturn. This had to be done with fewer resources (financial and labor) and a streamlined approach which included reducing costs, improving efficiency, and looking at new ways to improve production. In December 2009, a large order was received, which made up 25 percent of the years total production. This order needed to be filled by the end of the month to meet customer goals and provide a significant source of revenue. Previously an order of this size would require a 4-6 week turnaround, but to meet customer requests and revenue potential the order would need to be completed in 50 percent of that time. This required a change to the production process in order to meet the customers requests and schedule. ZTEC contacted the New Mexico Manufacturing Extension Partnership (NMMEP), a NIST MEP network affiliate, for help.

Solution:

NMMEP provided a Lean manufacturing workshop for the ZTEC manufacturing department after which the company employees applied lessons learned to improve their production process for the large order. ZTEC used the 5S (Sort, Set in Order, Shine, Standardize, Sustain) process to reorganize their manufacturing lab to be cleaner, better organized, and more efficient. This was done by having the tools needed for assembly at each station, color coding each work station and its tools, and by cleaning all excess clutter from the work areas. This made it easier to work and have the needed tools ready and accessible during the assembly process.

Using Lean Manufacturing concepts, NMMEP worked with ZTEC to analyze and review the production process. Previously, units were produced individually often by the same individual versus using a batched assembly line process. The manufacturing process was refined and broken into key steps to increase efficiency and to make the line more assembly step based. This allowed multiple units to be produced at once, and for employees to complete an assembly step and move on to the next unit. This made the whole assembly workflow smoother and more efficient. The production lab was organized to better follow the assembly flow and to reduce efficiency waste. Work flowed from station to station and moved quicker. Documentation for each step was created or enhanced to allow for

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standardized training, and to reduce variability in the assembly process. This resulted in improved training, better execution of the assembly steps, and higher quality (due to less variability even with more people involved because everyone followed standardized instructions). Meetings were conducted at each step of the process to gather employee input and to ensure everyone understood and had the same expectations. This improved communication and ensured everyone was working towards the same goal. The plan was executed and resulted in the company completing the large order in only 8 days. The key to this success was due to NMMEP's assistance with the analysis, planning and implementation of strong Lean Manufacturing principles which resulted in improvements to the manufacturing process in many areas.

Results:

- * Reduced lead time by 50 percent.
- * Achieved a more competitive and profitable position.

Testimonial:

"ZTEC has consistently worked with NMMEP to continually improve the manufacturing process. The input we receive has enabled ZTEC to improve on time delivery to our customers no matter the size of the order."

Lezlie Hagg, Director of Operations